

## Patent Claims

1. Arrangement for the optical detection of light radiation which is excited and/or backscattered in a specimen, wherein the specimen illumination is focused in and/or in the vicinity of a pupil plane of the beam path between the specimen plane and detection plane, and apparatus is provided in this plane for spatially separating the illumination light from the detection light.
2. Arrangement according to claim 1, wherein fluorescent light and/or luminescent light and/or phosphorescent light and/or diffusely scattered illumination light coming from the specimen is detected.
3. Arrangement according to claim 1 or 2, wherein the apparatus for spatial separation comprises at least a reflecting first portion and at least a transmitting second portion, wherein the reflecting portion serves to couple in the illumination light and the transmitting portion serves to pass the detection light in the detection direction, or the transmitting portion serves to couple in the illumination light and the reflecting portion serves to couple out the detection light.
4. Arrangement according to one of the preceding claims, wherein a beam splitter is provided which has a central portion which is constructed so as to be reflecting or transmitting and which is surrounded by a second portion which is constructed so as to be transmitting or reflecting.
5. Arrangement according to one of the preceding claims, wherein the beam splitter is constructed as a pole splitter.
6. Arrangement according to one of the preceding claims, wherein scanning is carried out with the beam splitter.
7. Arrangement according to one of the preceding claims, with oblique illumination for a wide field microscope.

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8. Arrangement according to claim 7, wherein a lens which is displaceable vertical to the optical axis is provided.

9. Arrangement according to one of the preceding claims, wherein a wide field microscope with structured illumination is provided.

10. Arrangement according to claim 9, wherein a depth-resolved detection of the specimen is carried out.

11. Arrangement according to one of the preceding claims, in a laser scanning microscope.

12. Arrangement according to one of the preceding claims, wherein a line scanner is provided.

13. Arrangement according to one of the preceding claims, wherein the scanning line is overlaid with structured illumination.

14. Arrangement according to one of the preceding claims, wherein the length of the line is varied by varying the focal length and/or imaging scale of a microscope arrangement.

15. Arrangement according to one of the preceding claims, wherein the length of the line is varied by means of adaptive optics.

16. Arrangement according to one of the preceding claims, wherein the length of the line is varied by an adjustable diaphragm.

17. Arrangement according to one of the preceding claims, with descanned detection.

18. Arrangement according to one of the preceding claims, with partially descanned detection in one direction.

19. Arrangement according to one of the preceding claims, with nondescanned detection.

20. Arrangement according to one of the preceding claims, wherein the detection is carried out by a CCD camera.

21. Arrangement according to one of the preceding claims, wherein a sampling and/or detection of selected specimen areas is carried out.

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